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County of Santa Clara

Information Technology Strategy

Submitted to the Board of Supervisors

by the Technology Committee

February 8, 1993

Information Technology Strategy

Purpose and Goals

The purpose of Santa Clara County government is to provide quality services to our customers: the County's residents, businesses, and other local governments. Information Technology offers, perhaps, the single greatest opportunity for maintaining and improving public service in the face of increasing demands and increasing costs.

We can apply technology to make incremental improvements in services or operations, such as switching from typewriters to word processors. Technology can also have broader impacts, changing the ways we do our jobs, or changing the types of services we provide and the ways we deliver services. Obtaining full value from technology investments requires the management of organizational change coupled with the management of specific technologies.

This document describes a strategy for using Information Technology (IT) in the County. The strategy includes principles and criteria for decisions on technology investments, policy statements and guidelines on key management issues, and a description of and plan for IT architecture and infrastructure. It should be helpful to employees, managers, vendors and the Board of Supervisors. This document will evolve and change with experience, County business objectives, and availability of new technology.

Goals

The County cannot operate without computer-based information systems. Basic County services such as justice, public safety, health, welfare, revenue collection, and transportation depend on these systems. Information systems are also a fundamental part of the County's administrative infrastructure. They must be planned, managed, and deployed with the same care and attention as are roads, buildings, and staff.

The County will apply Information Technology to achieve the following goals:

1. Improve the delivery of County services to our customers.
2. Provide better service by improving internal, County operations.
3. Promote cooperation among County departments, other government agencies, and the private sector.
4. Reduce and/or avoid costs and increase revenues.
5. Increase the effectiveness and quality of work life of County employees.
6. Improve decision-making in County government.

Guiding Principles

Where do we want to be in the future? The following statements describe the principles we will use in making investments in Information Technology. We believe these principles will help us best meet our stated goals.

Our Information Technology Strategy will be driven by and will support County and department service strategies and goals. A first step in new system design will be to consider the need and opportunity to re-engineer work processes. Applications will be based on functions (such as justice, health and human service programs, finance and personnel) and will not be constrained by current organization lines and single department needs.

Front-line, service delivery staff will have the tools to access all needed information, and to be effective with minimum drudgery. Technology will be employed to support the County goals to have the "highest calibre employees" who "provide quality services to the community."

Technology will be used to improve the effectiveness and productivity of County government. We will use technology to minimize organizational overhead and maximize resources devoted to direct customer service. Information, regardless of its location within the County, Bay Area, or state, will be universally available (subject to the need and right to know.) Information will be delivered for direct client services and for management analysis and business decisions. **We will routinely evaluate opportunities for information to be shared by organizations to minimize the cost of collection and maintenance, and to maximize accuracy.**

We will make the best use of IT resources: money, staff, and equipment. IT resources will support long term, cumulative, department and County-wide objectives. This includes the best use of current equipment investments. Our procurement practices will encourage vendor competition and best efforts. System development, maintenance, operation, and project management practices will support successful investments over the life of IT applications.

County computing will be based on "open" industry standards. This will enhance competition, provide alternative vendors, and protect investments in hardware, software, and training. **Technology will support the sharing of information and systems among departments,** and the integration of different products acquired at different times for different purposes.

We will encourage trials of innovative service delivery, improved business processes, and the creative use of technology. Technology will enable citizens to serve themselves directly. Proven off-the-shelf systems, prototypes, production pilots, and other small scale trials will reduce project risks.

These guiding principles lead to the following overall policy which will guide our management, deployment, and use of Information Technology in the County.

Overall Information Technology Policy:

County departments will individually manage the use of Information Technology to achieve the goals and principles. The County collectively will manage the use of Information Technology to support and ensure County-wide planning and collaboration on systems for common services and functions. The County will build and maintain a common, standards-based, County-wide Information Technology infrastructure for collaboration between work groups.

The following section describes more specific Information Technology policies and architectural concepts that will help us fulfill our goals, principles, and overall policy.

Policies and Architecture

The goals and guiding principals in the previous section affirm the County's commitment to build an information infrastructure that provides universal access to tools, services and information to serve our clients. Management of the County's Information Technology strategy will be on-going. The County must continuously progress toward its strategic goals even though the ideal results will not be immediate.

We must manage eight key subjects to realize our goals:

1. **Data communication:** The basic **data transport network**, available to all departments, that is the foundation of a County information infrastructure.
2. **Common County-wide network services:** Shared services, available and easily used by every County employee that are essential for staff collaboration and integrated client service.
3. **Data management:** The general purpose capability to organize and access information when and where it is needed throughout the County.
4. **Work group productivity tools:** Tools, available at desktops, which support the highest standards of individual and collective staff productivity.
5. **Staff training, development, and support:** The organizational capability and commitment to build Information Technology skills and competencies, and to provide in-depth help to solve specific problems.
6. **Systems management:** The project, system, and County organization practices which commit us to quality results.
7. **Innovation and technology transfer :** The activities and practices which encourage the **timely identification and beneficial application of new technology**.
8. **Organizational roles and responsibilities:** The clear definition of our individual and collective responsibilities to fulfill our Information Technology goals and objectives.

Each of these eight key subjects is covered in more detail on the following pages.

Data Communication

A shared, County-wide, data communications infrastructure must provide for department-managed data communication, and common County-wide work group interconnections.

County backbone network

The County will fund, build, and centrally manage a County-wide general purpose data communication backbone. Backbone services will be based on the concepts of:

- Peer-to-peer, open, common protocol, communications technology.
- County funding of departmental connections to the backbone.
- Secure connections to departments, and support of general purpose encryption of data packets as required.
- Capacity and performance to meet County and department needs.

Departmental and work group "Dedicated" networks

Departments are responsible to build and maintain dedicated networks to meet their individual work group needs. County departments will participate in and utilize the backbone for:

- All inter-departmental communication.
- Intra-department communication when appropriate.

Gateway to networks and services

The backbone will provide shared, common gateway services to and from networks outside County government including:

- Regional, state, city, and school networks.
- "For fee" information services, with costs allocated to users.
- Networks of public, authorized private organizations, and other government entities who may need access to County services.

Common County-wide network services

The County will select and provide basic, common, network services. These include electronic distribution of correspondence and data files, and the ability for any authorized County worker to use any computer application in the County.

Mail The County will fund, build and centrally manage an industry standard, common protocol, County-wide mail service. Mail is more than an electronic replication of simple typewritten messages. It may include a variety of electronic correspondence such as images, voice messages, richly formatted documents, electronic conferencing, meeting schedule requests, and exchange of data files.

- Departments' mail systems will be interconnected, providing a free flow of basic mail packets.
- Departments will maintain existing work group mail systems, and plan and fully participate in the County mail backbone as it is developed.
- Departments without a mail system will be provided a common, basic mail service.
- Services will also include a directory of mail participants, security of data, access to work station functions, logging and performance management.

File transfer Common file transfer protocols and tools will emphasize ease of use and minimize operating differences between systems.

Remote operation Remote operation tools will provide the capability for any authorized user, at a workstation anywhere in the County, to fully use any department's system.

*Directories of organizations
and employee
network addresses* Centrally managed County-wide directories will support addressing and universal transmission of electronic correspondence and data.

Data Management

A consolidated County-wide perspective of multi-department data is needed. Individual departments need the ability to access other department's data. County access will be based on data held and managed by departments for their operational purposes.

County-wide data access mechanism

The County will fund and centrally manage a common data access mechanism. A consolidated perspective of County-wide data supports a broad analysis of operations and cross department collaboration. Access will be provided in stages:

- Publish a data dictionary with the source and definitions of data elements that are of broad County-wide value.
- Document a logical model of County-wide data which serves a well defined County business purpose. The model will include common data definitions and relationships.
- Provide common access tools at workstations to access and analyze data, regardless of its location.

Operations based data

Data will not normally be collected solely for County-wide planning, but acquired as a by-product of department operations to ensure its accuracy.

Department data repositories

Departments are responsible for systems that support work group operations. Data will be stored and maintained in computer systems supporting work group operations. There are added (and potentially significant) costs of coordinating and providing County-wide access to work group data. The County will fund department equipment and software devoted to data access gateways. Departments are responsible for:

- Data collection, maintenance and accuracy. This is a by-product of normal department operations.
- Data definition, accessibility, and security, by use of industry standard ("SQL" based), data management technology. Consideration of County-wide data access and governance practices must be included in department systems.
- Consideration of opportunities, particularly as new systems are developed, to share information between departments and to avoid redundant data management.

Work Group Productivity Tools

General purpose workstation, work group, and application development tools must support department staff, and also the County-wide portability, and collaboration of staff and systems.

Preferred County-wide tools

The County will develop a list of preferred, general purpose workstation, work group, and application development tools which:

- Support routine portability and collaboration of staff and systems.
- Ensure easy and rapid exchange of data objects, such as formatted documents.
- Lay the ground work for effective staff workstation training and support.

Specialized department tools

Departments:

- Will select and implement specialized tools that serve individual professions and functions.
- Are encouraged to demonstrate innovations of potential County-wide value that can add value to basic County-wide services.

Staff Training, Development, and Support

County staff needs readily available, in-depth, training and technical support to obtain the full benefits from the significant investment at each workstation.

County-provided support

The County will centrally provide staff training and technical support. Support will be limited to selected, preferred tools, and will take place at four levels:

- Personal skills development for employees, even though it may not be immediately required on the job.
- Competency development to build in depth, on the job capability.
- Consulting, technical support and problem resolution at the work site.
- A "Technology Academy" to build skills in project management, system development and the steps of Business Process Redesign.

Department-based support and training

Departments are responsible for:

- Support of unique and specialized tools.
- Training staff in security responsibilities, based on a model "Code of Responsibility." Access to system facilities will not be permitted without this training.

Systems Management

Information systems are a vital part of the County service delivery infrastructure. Realizing the full value from these major capital investments requires a basic set of project and system management practices and organization disciplines.

County function based systems

Planning for new systems will involve all County programs that provide services in the functions addressed by the proposed system.

Business and work process re-engineering

Departments are responsible to build the basic steps of business process redesign into the initial stages of system planning and development. The methodology will provide for an "early out" if process redesign is not feasible.

Project proposal and measurable benefits

The County will develop a project proposal guideline, including an emphasis on measurable improvements in services and costs.

Project management

The County will develop a project management guideline which will include:

- Accountability for completion within outcome measurements.
- Senior department management sponsorship and continuing, fully involved, project commitment in partnership with the project managers.
- Fully-staffed systems project management with appropriate responsibility and authority.
- Monthly summary report of progress, plans, costs, and issues to the Office of the County Executive.

Procurement

The County will prepare procurement guidelines which will include vendor and County responsibilities, and emphasize the County's Information Technology Strategy.

Systems Management (continued)

System life-cycle management

Departments will identify the proposed phases of a systems' development, and deliverables for each phase. At the end of each development phase the following will be updated:

- Project plan and budget
- Cost/benefit analysis
- Operation and maintenance plans

The County will develop examples and models of the above elements.

Quality assurance

Each department will include quality assurance reviews in its project plans. The County will develop models and examples. Reviews will:

- Include participants independent of the department and the project.
- Update and evaluate expected business costs and benefits of the system.
- Provide a post implementation review that evaluates planned versus actual functional capabilities, measurable benefits, and documents innovations and lessons learned.

Annual planning

The County will update its technology strategy and each department will prepare a systems plan early in the annual budget cycle.

Innovation and Technology Transfer

The County must support the rapid and effective deployment of new technology for customer service and organization improvements. A key part of the County's technology strategy must be activities to increase understanding of opportunities and innovations. Organization incentives that support development and transfer of successful applications include practical funding options and simplified project approval processes.

<i>Technology Fair</i>	The Data Processing Center, with the participation of the ISTC and ISPPC, will organize and host an annual technology fair with speakers and demonstrations from County departments and industry. The fair will be aimed at introduction and transfer of new technology and applications.
<i>Post implementation "Open House"</i>	Departments will publicize and host an open house demonstrating features, benefits, and lessons learned from a completed systems development effort.
<i>System development "Revolving Fund"</i>	The County will develop a funding mechanism to support innovative systems development and demonstration of promising new technologies. Funding will be maintained, in part, out of operational savings.
<i>Technology resource library</i>	The Data Processing Center will maintain an open reference library of product and system management literature for use by County systems staff.
<i>Funding incentives</i>	The County will develop a budget policy which creates incentives to fund high payoff systems development.
<i>Simplified project review and approval</i>	The project proposal and decision process will support timely and creative initiatives. Each year the process will be evaluated, with recent project managers, to ensure that the County's objectives for innovation and rapid, quality results are achieved.

Roles and Responsibilities

This strategy depends on several key organizations and constituencies.

<i>The Board of Supervisors</i>	Approve the County's Information Technology Strategy with the assistance of the Technology Committee. Approve expenditures related to the Strategy and departmental system plans.
<i>Technology Committee</i>	Promote the use of Information Technology. Lead the development and maintenance of this IT Strategy document. Recommend to the Board specific projects and investments.
<i>The County Executive</i>	Organize the Information Systems Planning and Policy Committee. Recommend the County IT Strategy and Departmental Systems Plans to the Board of Supervisors.
<i>Information Systems Planning and Policy Committee</i>	Executive management peer review of departmental plans and major projects consistent with the goals, guidelines and policies of the IT Strategy. Establish and recommend to the County Executive IT priorities and policies consistent with County business priorities.
<i>Information Systems Technology Committee</i>	IT systems professional peer review of IT proposals in support of the goals, principles and policies of the IT Strategy. Evaluate and propose advancement of the policies and architecture of the strategy. Support the implementation of County-wide components of the County IT Strategy.
<i>County departments</i>	Define department needs and manage the use of IT to serve County and department customers and the public.
<i>County employees</i>	Understand and effectively use available IT tools, systems, training and support to deliver high quality County services. Identify opportunities to apply technology and business process improvements. Assist in the evaluation of services and systems.
<i>Clients and customers</i>	Take full advantage of County services and the IT tools available to them that add value to the service. Help evaluate County services and supporting systems.

Implementation of the Strategy

Migration of the County to the policies and architecture described above, will occur in stages. All new and re-engineered systems will adapt to the backbone services. The County will set priorities for investments in County-wide capabilities. Investments and adaptation of existing systems will be planned on a case by case basis. The rate of implementation of County-wide infrastructure capabilities in each department will include consideration of existing County investments in department computing technology and the need for rapid, full, County-wide participation.

Criteria for IT Investment Decisions

The criteria for staffing and funding projects will reflect the Guiding Principles. It is vital that funding and approval be perceived by all to be open, equitable, and rational.

County government's resources are limited, and we have the responsibility to make the best use of the money, staff, and equipment available. To make appropriate decisions on allocating these resources, including investments in Information Technology, decision-makers should have a clear understanding of what we can expect to receive for any investment.

The County can best make investment decisions when the choices among priorities are quantified. For example, it is more helpful to know that an imaging system will reduce processing time for a customer's request by 30 minutes than to know that it will simply "save processing time." Thus, project managers should quantify the expectations for investments as much as possible. We also recognize that some benefits (and costs), such as improved employee satisfaction, are difficult to quantify. Project managers should describe such benefits and costs qualitatively, and be able to provide documentation.

Ongoing IT Strategy Development and Maintenance

Maintaining our IT Strategy and the supporting architecture is a continuing responsibility. County business changes, the pace of technical change, and the results of past projects, will all present a series of problems and opportunities. We must develop organizational habits and traditions which make IT strategic planning a regular and fully participative part of executive management responsibilities.

Plan of Action

January 1993

1. Technology Committee completes Strategy
2. Departmental Plans for FY94 submitted

February 1993

1. Board approval of IT Strategy Document

April 1993

1. Establish FY94 IT Strategy Priorities
2. Complete County IT Infrastructure FY94 budget request

June 1993

1. Complete work plan for FY94 County-wide IT infrastructure activities



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